HYDRIM® L110w

- **Service Manual**

SciCan

A HIGHER STANDARD

Hydrim L110w Service Guide 95-109977 Rev 1.0
Copyright 2007 SciCan Ltd . All rights reserved.

Table of Contents

Cycle Description	3
Safety Information	4-5
Tools & Hardware Required for Maintenance, Shipping Instructions	5
Pre-Installation, Tools & Hardware Required to Install, Installation Instructions	6
Electrical, Water & Drain Connections	7
Disconnecting the Unit, Setting the Water Softener, Water Hardness Setup Table	8
Adding Water Softening Salts, Installation Test, Program Description Chart	9
Routine Maintenance	9-10
Operating Instructions	11-12
Overview of Menus	13
User Menu	14-15
Setup Menu	16-18
Technical Service Menu Overview	19-21
Technical Service Menu	22-29
Troubleshooting Using Technical Service Menu	30
Cycle Faults	31-33
Opening Door in Case of Power Failure, Cover Removal	34
Component Replacement	35-39

SciCan Ltd.
1440 Don Mills Road
Toronto, Ontario
M3B 3P9
Canada
Local: 416.445.1600
Toll Free: 1.800.667.7733
Fax: 416.445.2727

For all Service and repair inquiries:

Canada:	1-800-870-7777
USA:	1-800-572-1211
International:	1-416-445-1600
Email:	techservice.ca@scican.com

Hydrim is registered trademark of SciCan Ltd. HIP is trademark of SciCan Ltd. All other trademarks referred to in this manual are the property of their respective owners.

Cycle Description

	P1 Rinse & Hold Cycle*	P2 Regular Cycle	P3 Heavy Duty Cycle
Description	Use to keep instruments moist when not being washed for 1 hour	Use for moderately soiled loose instruments	Use for heavily soiled instruments and cassettes
Cold Prewash	<45ºC / 113ºF	N/A	<45ºC / 113ºF
Wash	N/A	50ºC / 122ºF 5 minutes	50ºC / 122ºF 9 minutes
Final Rinse	60ºC / 140ºF	60ºC / 140F	60ºC / 140ºF
Dry	N/A	1 to 20 min. Default 10 min.	1 to 20 min. Default 10 min.
Total Time **without drying**	9 minutes	16 minutes	25 minutes
Water Consumption* **	11.5L / 3 gallons	19L / 4.75 gallons	25L / 6.25 gallons

* This is not a wash cycle. Always run a wash cycle following a rinse and hold cycle.
** Cycles times depend on the temperature of incoming water.
***Water consumption depends on the regeneration Level

Specifications

Height, freestanding: 850 mm / 33.5"
Height, built-in: 830 mm / 32.75"
Width: 600 mm / 23.75"
Depth: 600 mm / 23.75"
Depth with door open: 1200 mm / 47"
Weight: 80 kg / 176 lbs.
Running Noise: 60 dB(A)
Hot and cold water connections: 3/4”
Inlet water pressure: 1-10 bar/14.5-145 psi
Incoming hot water temperature: 50-70°C / 122-158°F
Drain: 3/4”
Water softener: 1 kg / 2.2 lbs salt capacity
Drying System: Heater 1 kW
Electrical Connection: 208-240 V 60 Hz 15 A
Equipment pollution degree: Pollution Degree 2
Equipment installation category: Installation category II
Maximum relative humidity: 80% for temp up to 31°C / 88°F
50% for temp up to 40°C / 104°F
Operating temperature range: -5°C to 40°C / 23-104°F
Max. altitude: 2000m / 6561.7 ft.
Mains supply: + / -10% of nominal

Safety Information

Pay close attention to the following symbols that appear in this book

Caution, a potential
Hazard to the operator

Safe operation

The following applies to both operators and service technicians:

Exercise caution and seek assistance when lifting or carrying the unit.
Cleaning solutions may irritate. Avoid contact with eyes and mouth
Never lean on the open door. The unit may tip forward causing injury.
Always turn the unit **OFF** before adding softener salt or solutions. Before performing routine maintenance or servicing the unit, turn the unit **OFF** and unplug the power cord from the power source.
The operator should never remove the cover of the unit or insert objects through holes or openings in the cabinetry. Doing so may damage the unit and/or pose a hazard to the operator.
If the unit is used in a manner other than that specified, the protection provided by the equipment may be impaired.

Safe servicing

The Hydrim L110w Instrument Washer should only be installed and serviced by a qualified contractor, as it is an Installation Category 2 device. SciCan shall not be liable for incidental, special or consequential damages caused by any maintenance or service performed on the Hydrim L110w by a third party or for the use of equipment or parts manufactured by a third party, including lost profits, any commercial loss, economic loss, or loss arising from personal injury.
All local, regional, state and national regulations regarding the servicing of this class of device and safety requirements must be observed.

When the cover is removed:

Hazardous voltages are accessible. Disconnect the power cord before removing the covers.
Sharp metal edges are exposed. Be careful, and wear long sleeves and gloves.

Power main

A dielectric strength test (hi-pot) must be performed on the unit if parts associated with the power main are serviced or replaced.

Ground

A protective bonding impedance test (grounding continuity) must be performed on the unit if components of the protective earthing system are changed or if connections are broken and remade.

Reporting

It is vital for SciCan to learn of any problems in the field. This information will help SciCan solve the problem quickly and improve product reliability in new units.

Biological Waste

Wastewater in the unit may contain biological contaminants; use a mechanical means to siphon the contents. Wear disposable gloves. Dispose of absorbent material according to biological waste disposal regulations.

Tools & Hardware for Installation & Servicing

DESCRIPTION	DESCRIPTION
Nose pliers	Allen key 3.0 mm
Screwdriver PH 1	Channel Locks
Screwdriver PH 2	
Screwdriver Slot	
Wire cutters	
Small Slot screwdriver	
Nut driver 8 mm	

Shipping Instructions

The unit should be serviced on site. If it is necessary to send the unit back to the dealer, follow these instructions. Before shipping the unit, run the drain pump to remove most of the water from the system. If there is standing water in the chamber, siphon or ladle as much as possible and use an absorbent cloth to remove the rest.

Disconnect and remove the cleaning solution container. Completely screw in the leveling legs. Strap unit to a pallet in a proper box and specify heated and insured shipping.

Pre-Installation

The machine must be installed and leveled correctly for the unit to function as described. All electrical work must be carried out by a qualified electrician and in compliance with all local and national electrical codes.

Voltage:	208-240V
Frequency:	60 Hz
Rated load:	2.5 kW
Circuit breaker:	15A

The outlet needs to be accessible after the unit is installed.

The appliance must be correctly grounded! The manufacture cannot be held responsible for damage or injury caused by incorrect or missing grounding.

The Hydrim unit is heavy (80 Kg/176 lbs). Exercise caution and obtain assistance when lifting unit. The Hydrim is equipped with an air gap/anti-suction device to prevent backflow of dirty water into the water supply. No other air gap device is necessary.
If you need to extend the water inlet and drain hoses, ensure that you use commercial grade plumbing hose. The maximum length of the drain hose is 3.3 m/13'.

Installation Instructions

The Hydrim L110w should only be installed and service by a qualified SciCan contractor, as it is an installation Category 2 device. The contractor should be experienced in installing equipment that requires electrical hook-up as well as plumbing.

The machine must be installed and leveled (see below) correctly for the unit to function as described. All electrical work must be carried out by a qualified electrician and in compliance with all local and national electrical codes.

Leveling the Hydrim:

The unit is standing on three supports: rollers (wheels) at the back and two legs at the front.

1. Remove the kickplate. Push the Hydrim into place while lifting the strap at the front to allow the unit to roll on the rollers.
2. Adjust the front legs as required until the Hydrim is level. Access the legs from inside the unit.
3. The rear two legs are used only if the floor is uneven or cannot provide support to the rollers.

Electrical Connection

This appliance must be correctly grounded! The manufacture cannot be held responsible for damage or injury caused by incorrect or missing grounding. Before making any connections check that the voltage shown on the serial number label corresponds to your power supply. The machine is supplied as standard for connection to 208-240V 60 Hz single-phase power supply and is fitted with a power supply cord 1.8m/6ft. long, with a 6-15 NEMA plug. It should be connected to the main power supply according to the information below.

Voltage:	208-240V
Frequency:	60 Hz
Rated load:	2.5 kW
Circuit breaker:	15A

If you need to extend the mains connecting lead, do not cut off the plug. Replace the whole cable, which can be disconnected inside the unit.

Connection to the Water Intake

The unit must be connected to the water supply in accordance with all local and national plumbing codes. SciCan recommends a hard plumbing installation within 1.5m/5ft. of the unit. If additional distance is necessary, commercial grade plumbing hose must be used to minimize leaks.

Connect inlet hoses to hot and cold water taps using the hoses connected to the unit and in accordance with the installation instructions.

Water Connection	
Water Pressure:	1-10 bar/14.5-145 psi
Water Temperature:	Cold water less than 30ºC/86ºF Hot water up to 60ºC/140ºF

Drainage

The unit is supplied with a 1.5m/5ft. flexible drain hose with a 2cm/3/4” barb inlet. The hose should not be shortened or attached to any fittings that would cause a reduction in water flow. The drain system is equipped with a non-return valve that prevents dirty water from flowing back into the unit.

The drain hose should not be further than 1.5m/5ft. from a hard plumbing drain. If this is not possible, then commercial grade plumbing hose must be used to minimize leaks.

The hose can be attached to an existing drain through the use of a 3.5cm/11/2” or larger stand pipe/ P-trap combination. Alternatively, the hose can be connected directly to the existing drain lines, provided the fittings or adapters used do not reduce the water flow. The drain hose should not exceed 3.3m/13ft. in length, or be attached to the main drain at a point higher the 35cm/14” above the floor.

Disconnecting the Unit

To disconnect the unit, follow these steps:
Unplug the unit from the mains supply.
Turn off the water supply.
Disconnect the drain and water intake hoses.
Pull out unit using the moving strap. Carefully withdraw hoses at the same time.

Setting the Water Softener

Water quality and water hardness are very important to proper Hydrim operation. Please check your water quality before proceeding with the machine installation.

Your Hydrim is equipped with a built-in water softening system. The Water Test Kit provided will help you properly adjust the water softening system, and determine if you need additional water treatment.

The Hydrim Water Test Kit includes three water hardness test strips. Use them as described on the individual strip packages. Take the water sample from the location where the machine will be installed. Once you have determined the water hardness level in ppm (parts per million) find the recommended setting for your Hydrim L110w in the water hardness setup table. If your water hardness falls between two settings, select the higher setting (see page 17 & 18 for changing the setting). Water softening salt (available in most supermarkets and hardware stores) should be added regularly. If your water hardness is outside the unit adjustment range, you will need to get an additional water treatment system. Otherwise you could experience reduced washing quality, spotting or discoloration.

Water Hardness Setup Table

Hardness – ppm*	Hydrim L110w setting
0-180	0
190-210	1
220-250	2
260-300	3
310-350	4
360-400	5
410-540	6
550-890**	7
>890	Additional water treatment required

*Not all ppm steps available on the test strip, round up to higher value.
**Consider using additional treatment system even at this level.

Adding Water Softening Salts

If you have to set the water softener to any setting above 0, the message “Salt Level Low” will appear on the display.

To add water softening salts follow these steps:
Unscrew the salt container lid.
Upon first use of the Hydrim L110w, pour approximately 1 liter (1 quart) of water into the salt container, or until it is full with water. It is not necessary to add water during subsequent refills of the salt container.
Replace the salt container lid.

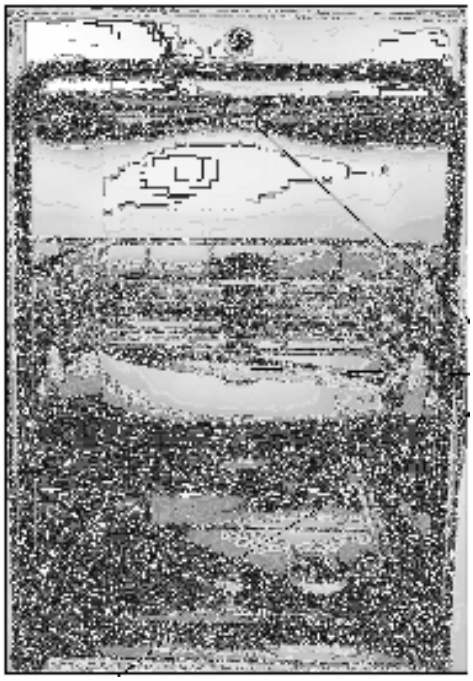
After salt has been added to the unit, the softening salt indicator will initially indicate salt needed. The indicator will turn off when the salt solution has become sufficiently concentrated.

Installation Test

Turn on the shut-off valves. Run a test cycle, checking for leaks. (See Operating Instructions)

Routine Maintenance

Daily
Filter
Inspect the filter inside the chamber.
To remove filter, lift filter and turn 90 degrees.

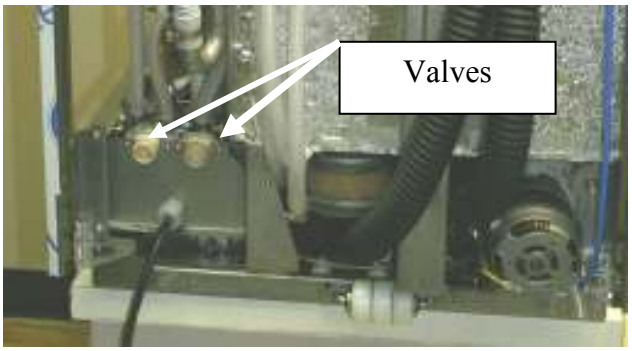


filter

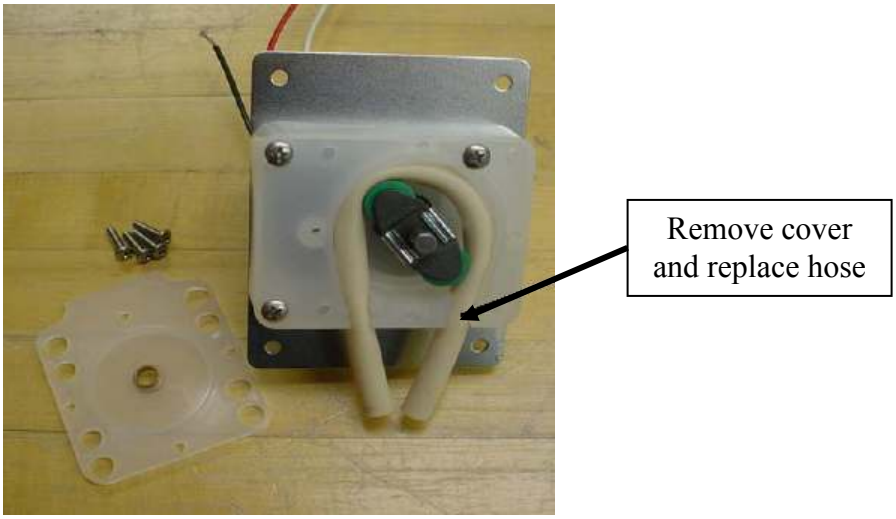
Wash arms

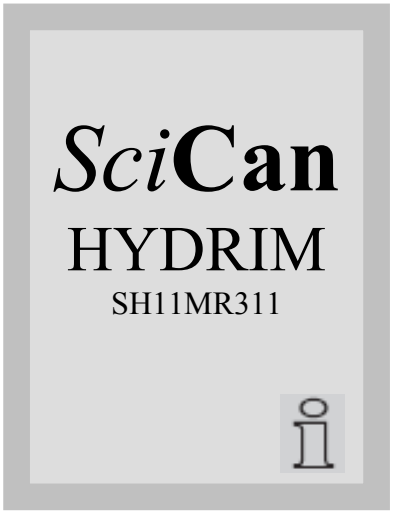
Weekly
Wash Arms
Inspect wash arms in chamber
To remove the wash arms unscrew the collar (Upper/middle arm are counterclockwise & lower is clockwise) and remove arm.
Inspect nozzles for debris, rinse under tap and reassemble.

Yearly
Water Inlet Hoses
Disconnect the hot and cold water inlet hoses.
Make sure the hoses are clean and free of debris.
Make sure the inlet valves are free of debris.



Dosing Pump Tubing
Replace internal tubing on Dosing Pump.





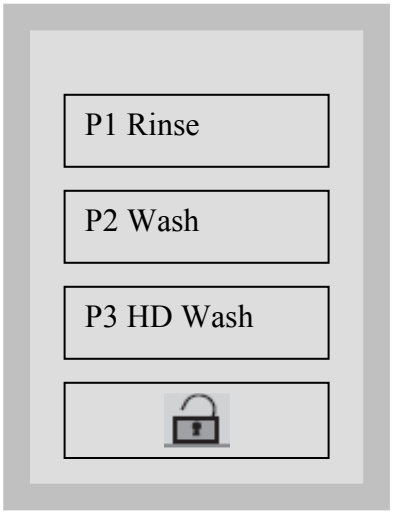
Power up screen

When Power Switch is turned ON this screen appears.

Pressing the "i" will allow you to enter the User, Technician or Setup menus.

The "i" symbol disappears after 10 seconds.

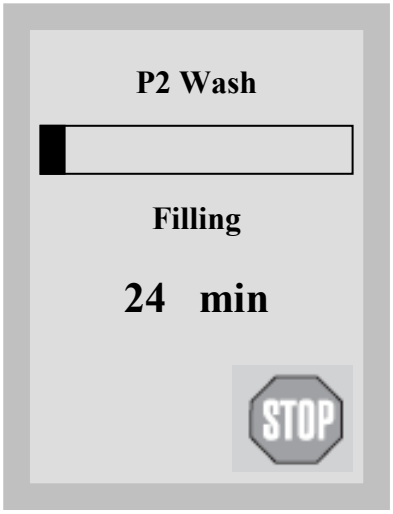
Touch the screen anywhere to change to Main screen.



Main menu screen

Press lock to unlock door or select the desired cycle.

(Use HD Wash for cassettes, hinged instruments or heavily soiled instruments.)



Cycle screen

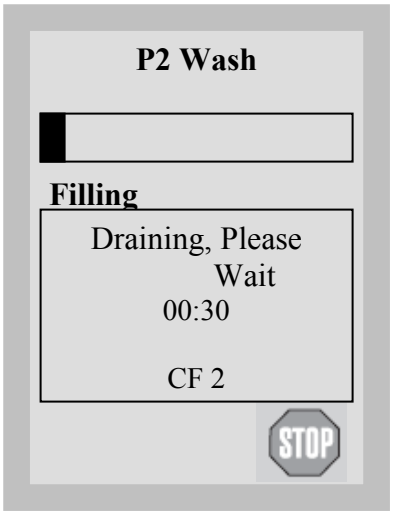
Cycle name appears at top of screen.

Progress bar shows progress of the cycle as percentage of remaining time vs. remaining time at the beginning of the cycle.

The stage within the cycle is shown beneath the bar (ex. Draining, Filling, Rinsing).

The estimated time remaining (in minutes) is always displayed. Please note that the time will increase or decrease depending on the projected cycle completion.

Press stop to abort cycle.



Cycle aborted screen

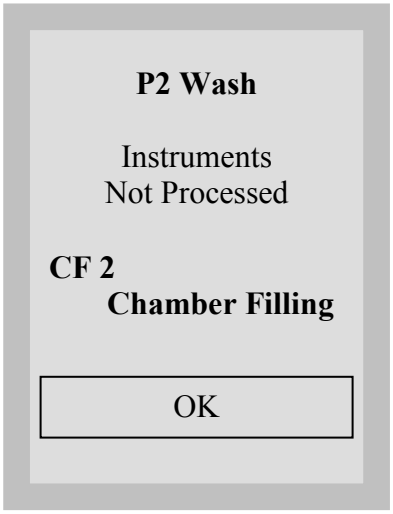
Touch screen is not active.

Unit drains for 30 seconds.

Error Code appears on display

Stop button will be shaded at this time.

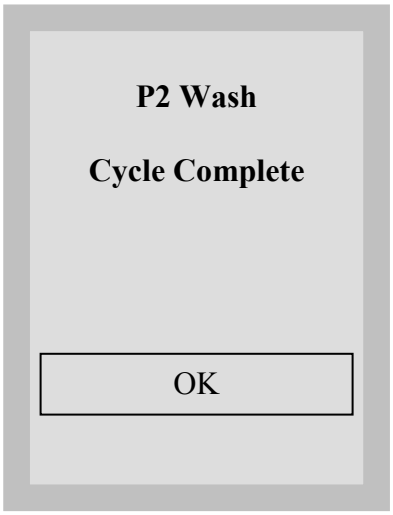
After draining timeout is complete, screen switches to cycle aborted acknowledge screen.



Cycle aborted acknowledge screen

If cycle aborted due to cycle fault or door opening display will indicate problem.

Press the OK button to return to the main menu screen.

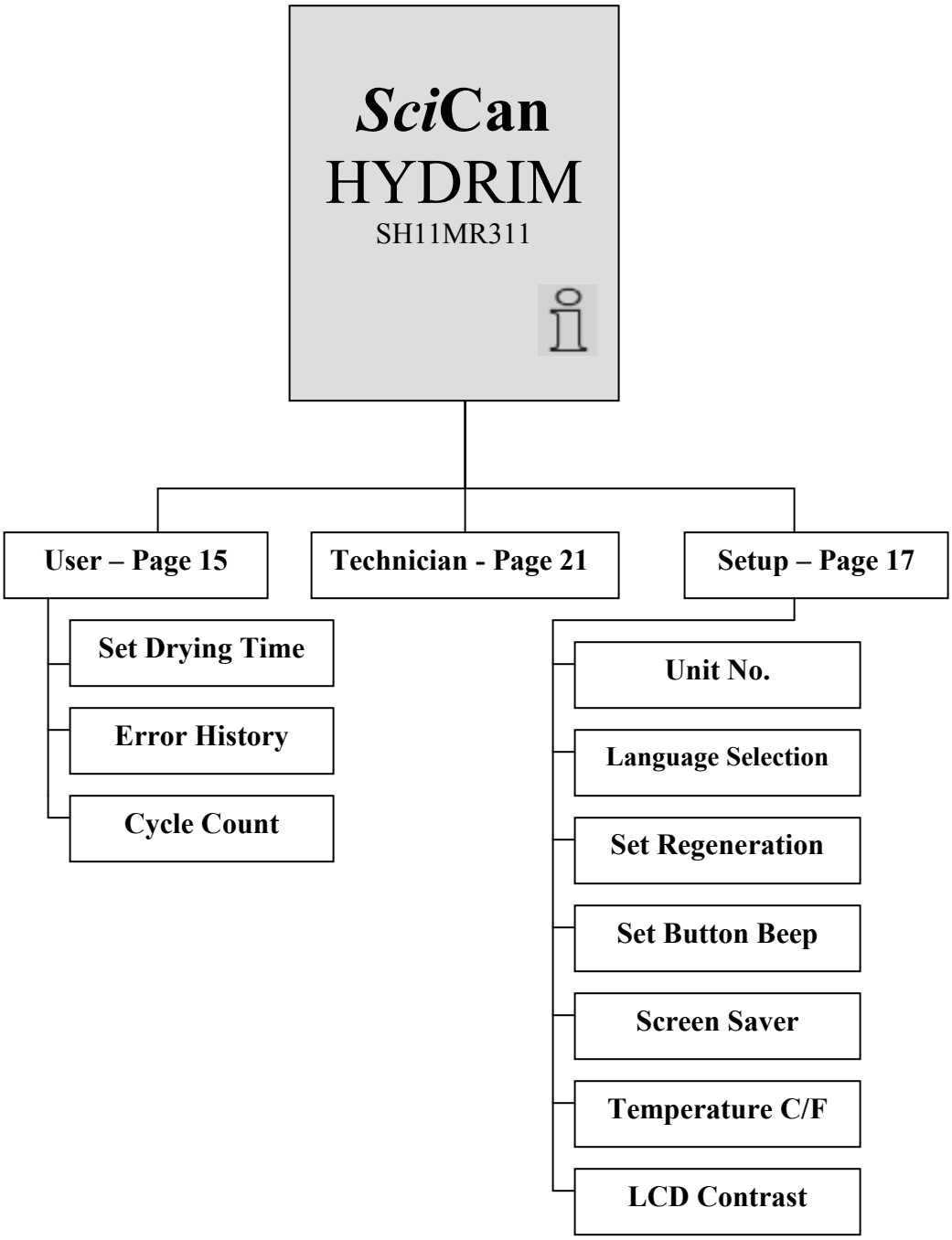


Cycle complete screen

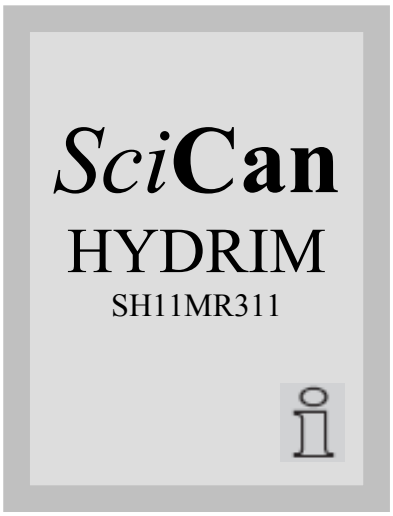
When the cycle is complete. The program name and “Cycle Complete” is displayed.

Press the OK button to return to the main menu screen.

Overview of Menus



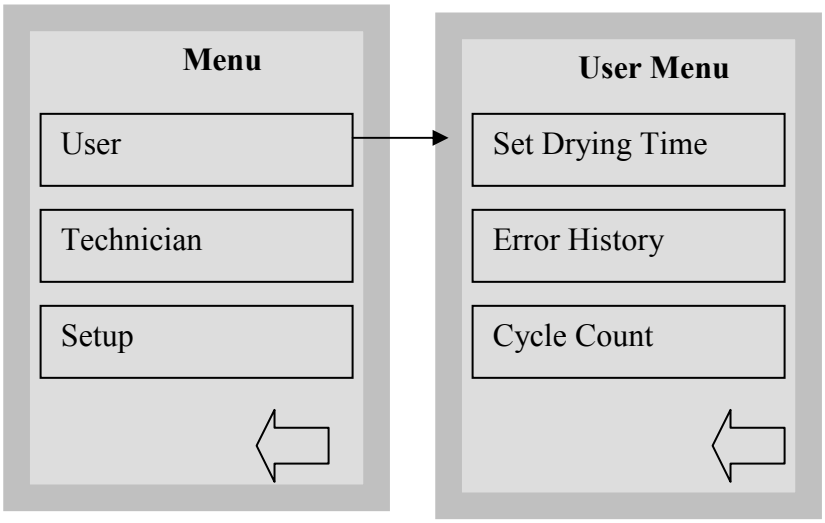
User Menu



To access the user menu, follow these steps:

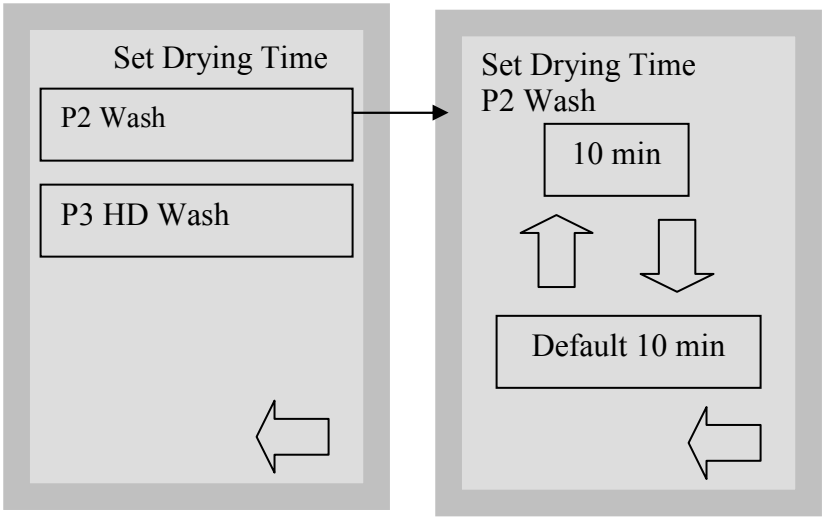
Turn the Hydrim OFF and then ON. An "i" (information) will appear for about 10 seconds at the bottom right hand corner.

Touch the "i" to move to the Menu screen.



Select User.

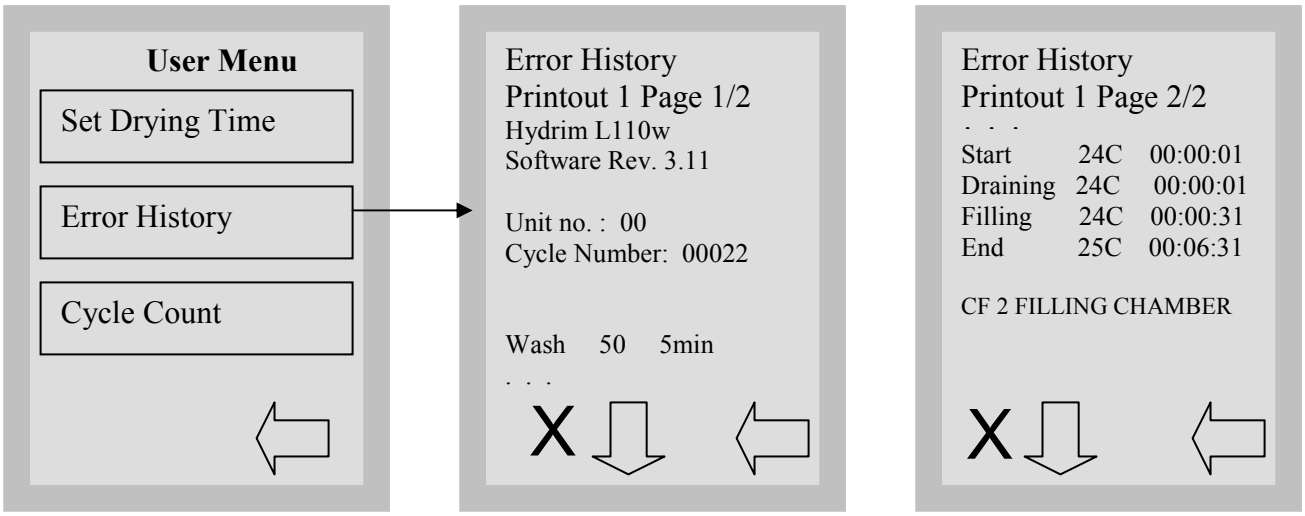
The User Menu consists of three choices



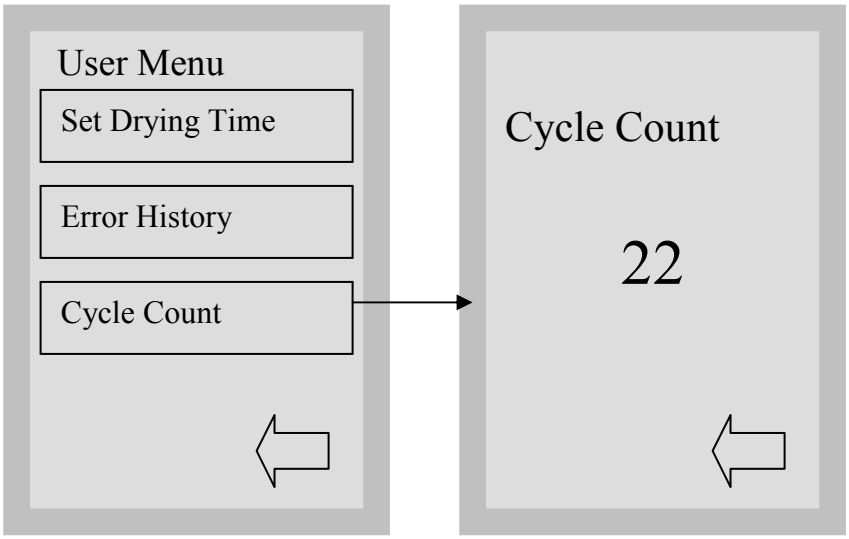
Set Drying Time

The drying time for P2 and P3 can be set independently.

Touch the cycle for which you want to set the drying time. Use the up and down arrows to select the desired drying time. Choose from 1 to 20 min. Touch **default** if you wish to return to the factory default. Use the back arrow to return to the previous screen.



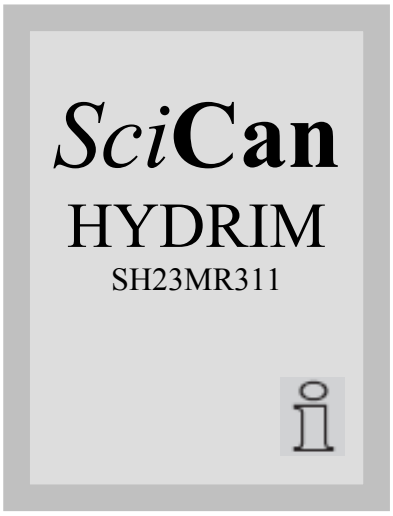
Error history screen allows the user to see the last four errors.
Press the down arrow to move to the next page/error.
Press the X in the lower left hand corner to clear the error history. There must be 4 errors stored to clear the error history and the last error will remain.
Press the back arrow to return to the previous menu.

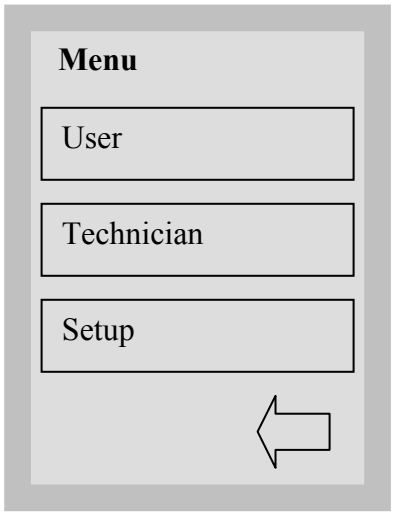


This allows the user to see how many cycles have been run on the Hydrim. Touch cycle count and the number of cycles (completed and aborted) will be displayed. This cannot be reset. Touch the back arrow to return to the previous menu.

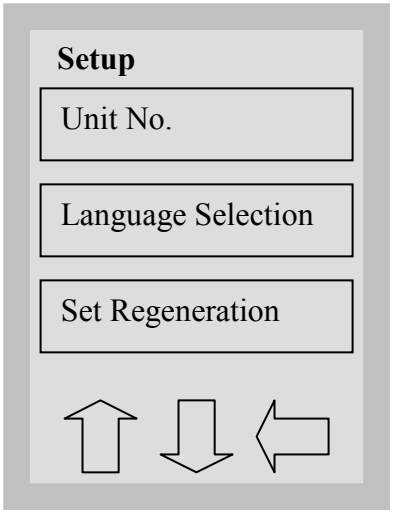
Setup Menu

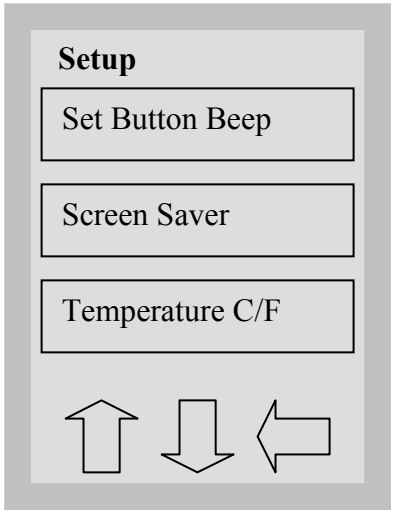
To access the Setup Menu, proceed to the menu screen by turning the Hydrim OFF and then ON. An i (information) will appear for about 10 seconds at the bottom right hand corner.

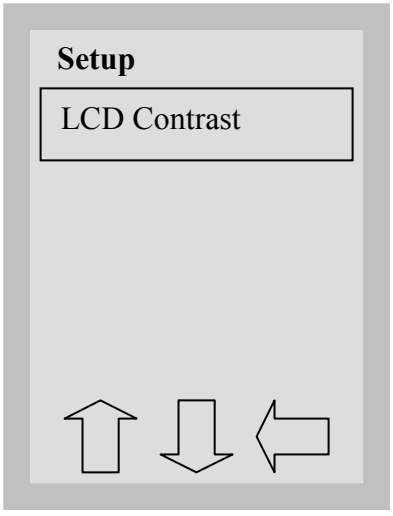




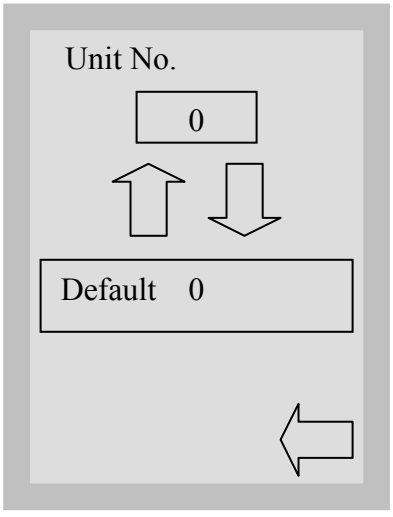
Touch the i to move to the Menu screen and select Setup.





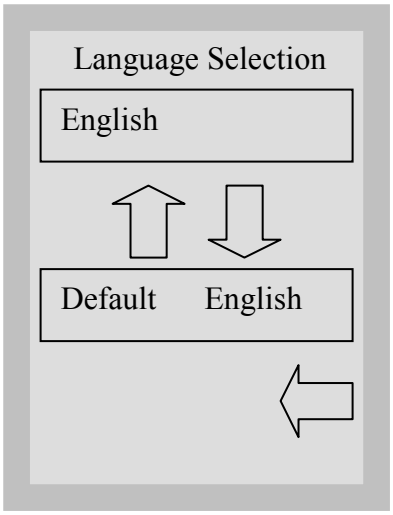


The Setup Menu consists of seven choices as shown above. Using the up and down arrows to move through the choices, touch the desired option to select it. For more detail on each Setup Menu option, refer to the following sections.



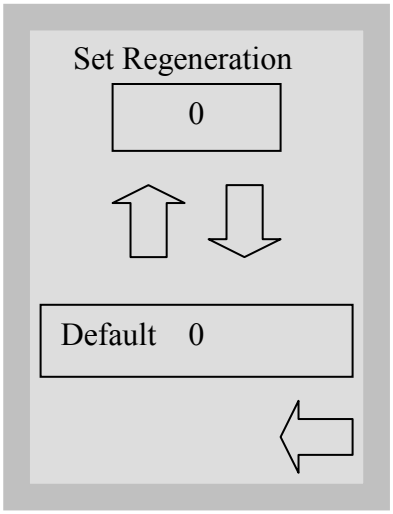
Unit Number

If you have more than one Hydrim in your office, you can designate them Unit #1, Unit #2, etc. Use the up and down arrows to select the unit number. The default is 0. Touch the back arrow to return to the previous menu.



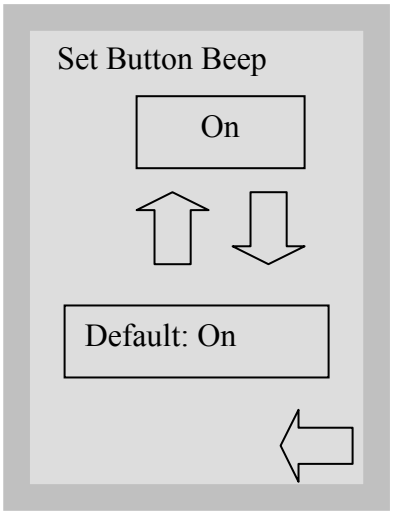
Language Selection

This allows the user to select among available languages for the Hydrim. Use the up and down arrows to select the desired language. The default language is English. Touch the back arrow to return to the previous menu.



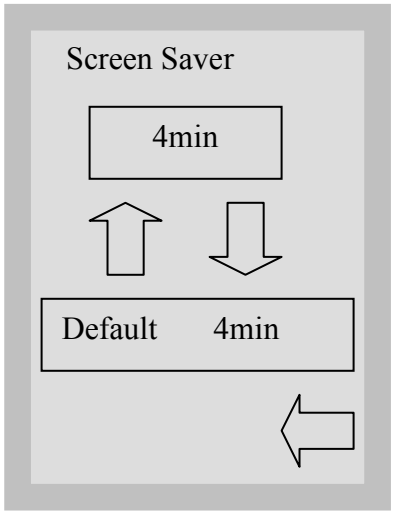
Set Regeneration

Set the salt regeneration according to the local water hardness. Use the up and down arrows to change the value. The default setting is 0. See installation instructions for further information. Touch the back arrow to return to the previous menu.



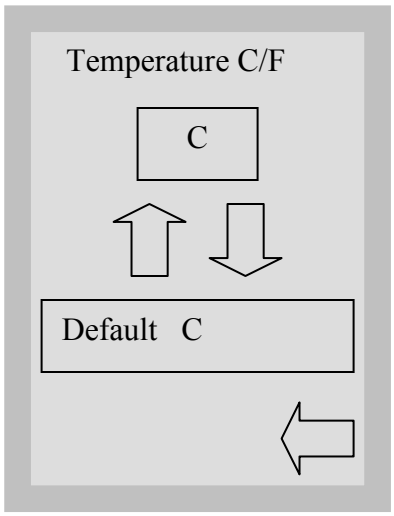
Set Button Beep

The user can select between having the unit beep or not beep whenever a screen button is touched. Turn the beep ON or OFF by using the up and down arrows. The default setting is ON. Touch the back arrow to return to the previous menu.



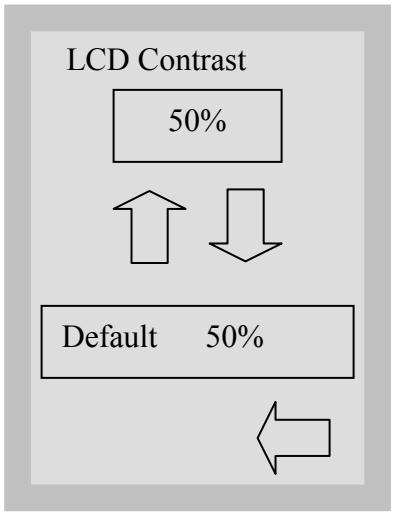
Screen Saver

The user can adjust the time that elapses before the screen goes into screen saver mode. Touch the up and down arrows to select the desired screen saver setting. The default is 4 minutes. Touch the back arrow to return to the previous menu.



Temperature C/F

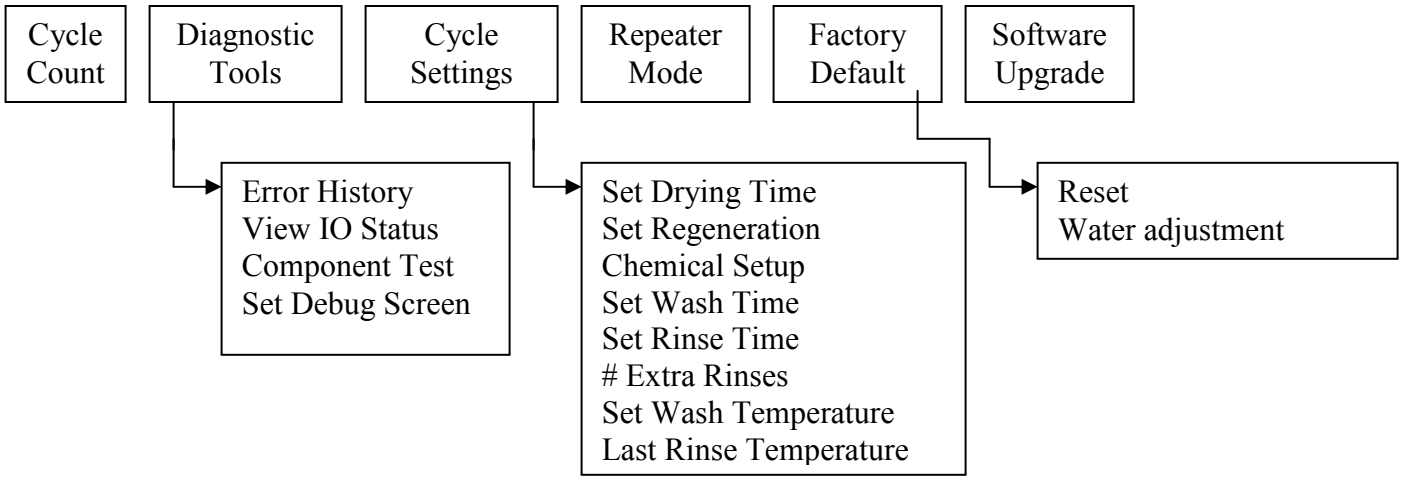
The user can choose to have information displayed in degrees Celsius or degrees Fahrenheit. Touch the up and down arrows to select the desired choice. The default is degrees Celsius. Touch the back arrow to return to the previous menu.



LCD Contrast

The user can change the contrast on the display. Touch the up and down arrows to select more or less contrast on the display. The default is Touch the back arrow to return to the previous menu.

Technical Service Menu Overview



To access this menu, turn the unit OFF and ON. There is an "i" in the lower right hand corner of the screen for about 10 seconds. Touch the "i" to get to the menu screen. Touch Technician.

Key in the password 7919 and press EN.

Within the main Technician menu there are six options.

Cycle Count: Displays the number of cycles that have been run (complete and incomplete).

Diagnostic Tools: Offers a submenu of six tools.
Error History: Allows access to the last Four errors.

Test Cycle: An abbreviated cycle that uses all pumps and valves. Cannot be used to process instruments.

Component Test: Allows individual testing of the following components.
Circulation Pump - ON/OFF
All Devices - ON/OFF
Door Latch – ON/OFF
Salt Regeneration Valve – ON/OFF
Dosing Pump – ON/OFF
Dryer Motor + Heater – ON/OFF
Hot Water Valve – ON/OFF
Cold Water Valve – ON/OFF
Rinse Aid Valve – ON/OFF (not used)
Drain Pump – ON/OFF

View IO Status: Shows the status of each component in the unit.

- Chamber Full Switch – ON/OFF
- Salt Switch – OK/No Salt
- Rinse Aid – ON/OFF (not used)
- Chemical Sensor – ON/OFF
- Chamber Overflow – ON/OFF
- Chamber Pressure – ON/OFF
- Door Switch – ON/OFF
- Chamber Temperature Celsius
- CTS (Clear to Send) – ON/OFF

Set debug screen: Shows IO status when cycle is running. (see troubleshooting tools)

Cycle Settings: Offers a submenu of eight settings.

Set Drying Time:

- P2 Wash
  - 10 min ↑↓ (choose from 1 to 20 min)
- P3 Heavy Duty Wash
  - 10 min ↑↓ (choose from 1 to 20 min)

Set Regeneration: Sets water softener setting.

- 0 ↑↓ (choose from 0 to 7)

Chemical Setup:

- Prewash
  - 5 sec. ↑↓ (choose from 0 to 15 sec.)
- Wash
  - 14 sec. (choose from 0 to 30 sec.)
- High Temp. Wash
  - 15 sec. (choose from 0 to 30 sec.)
- Rinse
  - 10 sec (choose from 0 to 15 sec.)

Set Wash Time:

- P2 Wash
  - 5 min ↑↓ (choose from 5 to 15 min)
- P3 Heavy Duty Wash
  - 9 min ↑↓ (choose from 5 to 15 min)

Set Rinse Time:

- P2 Wash
  - 1 min ↑↓ (choose from 1 to 10 min)
- P3 Heavy Duty Wash
  - 1 min ↑↓ (choose from 1 to 10 min)

Extra Rinses
- P2 Wash
  - 0 ↑↓ (choose from 0 to 4 min)
- P3 Heavy Duty Wash
  - 0 ↑↓ (choose from 0 to 4 min)

Set Wash Temperature
- P2 Wash
  - 50ºC ↑↓ (choose from 45 to 80ºC)
- P3 Heavy Duty Wash
  - 50ºC ↑↓ (choose from 45 to 80ºC)

Last Rinse Temperature
- P2 Wash
  - 60ºC ↑↓ (choose from 30 to 93ºC)
- P3 Heavy Duty Wash
  - 60ºC ↑↓ (choose from 30 to 93ºC)

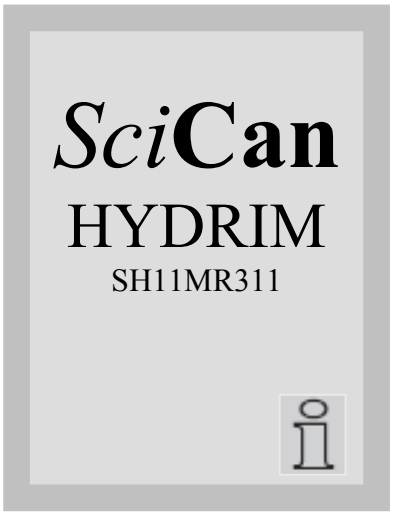
Repeater Mode: In the ON position, the unit will continuously run the selected cycle.

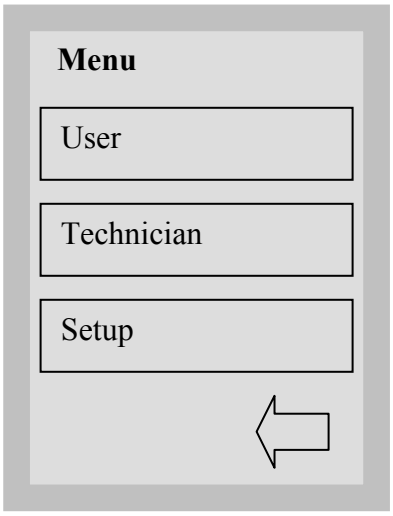
Factory Default: Resets all values to factory default.

Software Upgrade: To upgrade software via the SciCan Datalogger.

Technical Service Menu

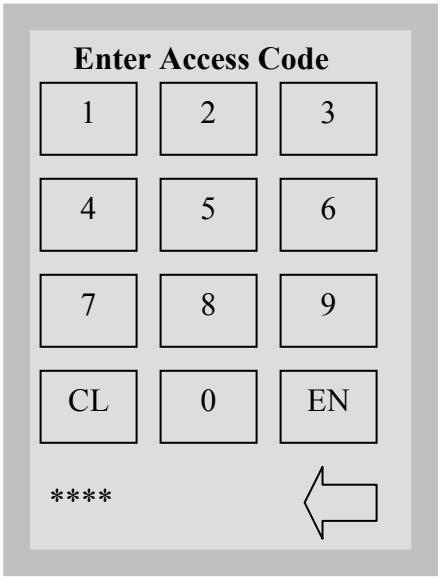
To access the Technician Menu, proceed to the menu screen by turning the Hydrim OFF and then ON. An **"i"** (information) will appear for about 10 seconds at the bottom right hand corner.





Touch the **"i"** to move to the Menu screen and select Technician.

Press the back arrow to return to the previous screen.

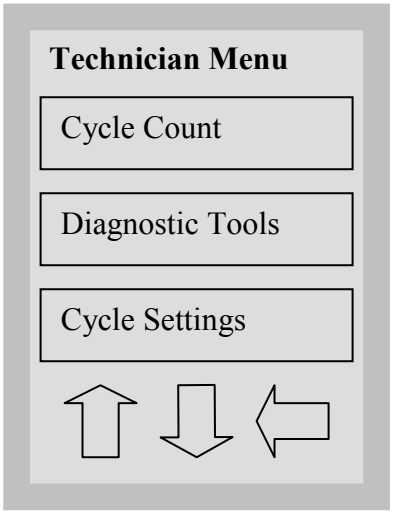


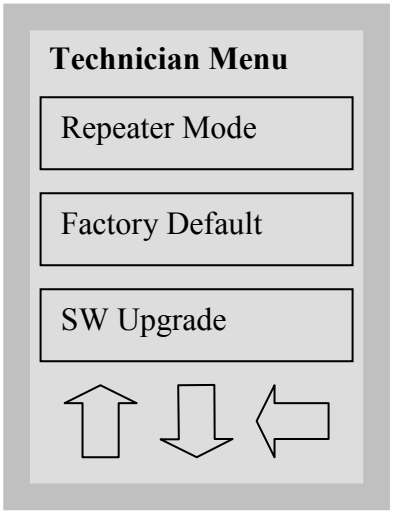
To enter the Technician Menu touch 7919 and press EN.

Password is shown as "*" characters.

Touch CL to clear the last number entered.

Press the back arrow to return to the previous menu.



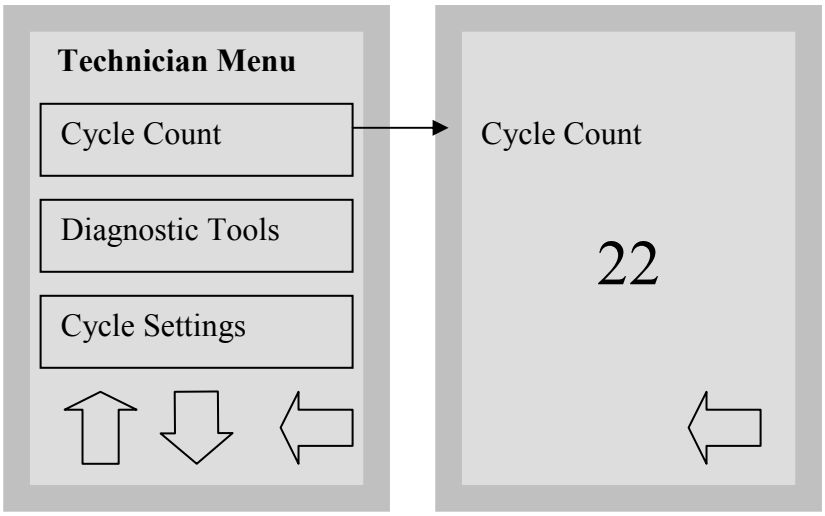


The Technician Menu consists of these six choices.

Up arrow pressed, change to previous Technician menu screen.

Down arrow pressed, change to next Technician menu screen.

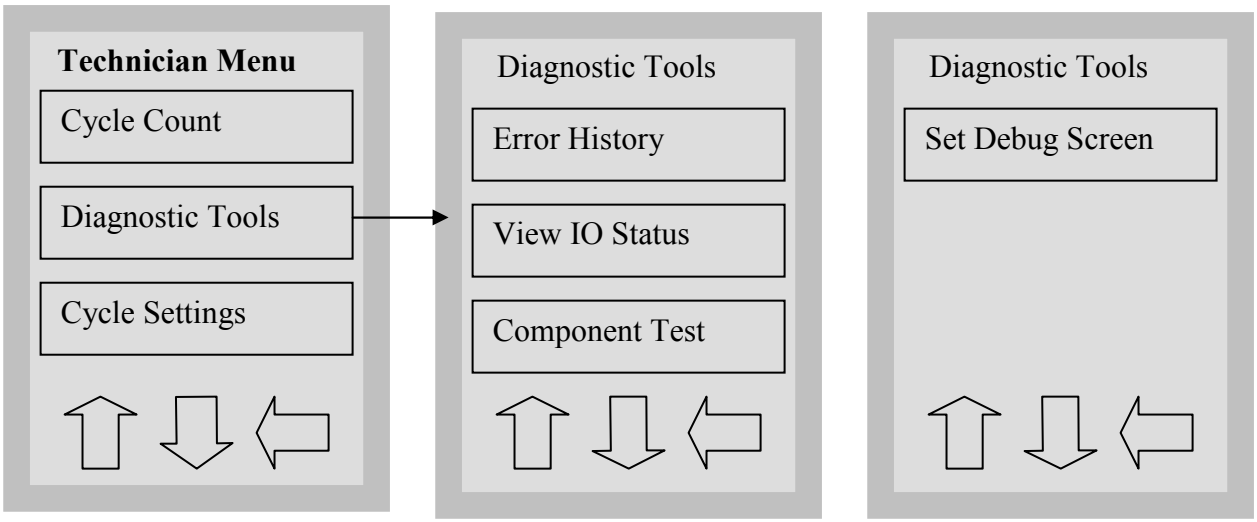
Press the back arrow to return to the previous menu.



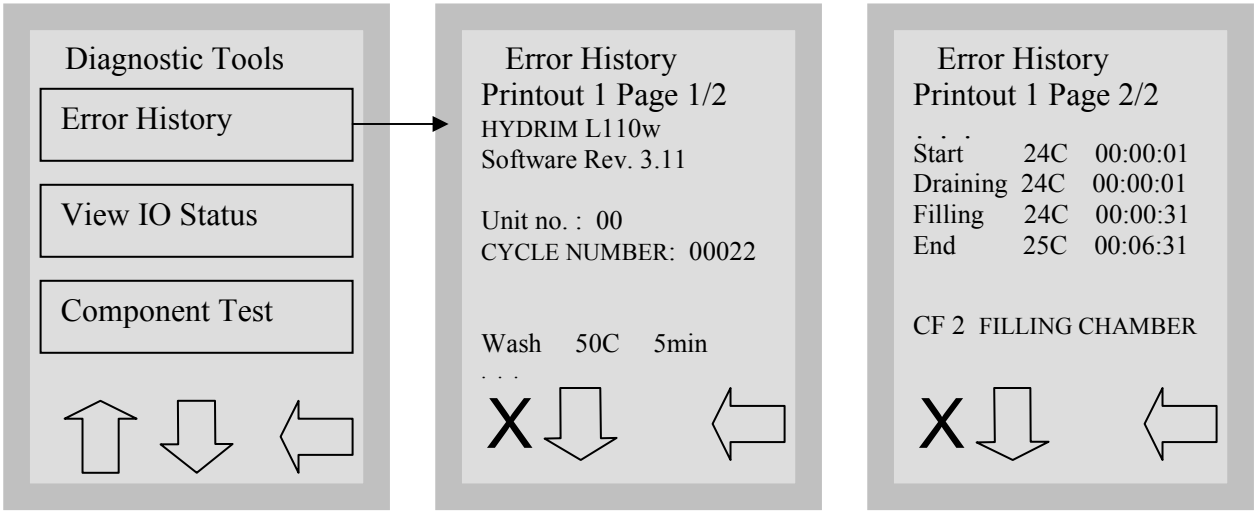
Cycle Count screen, allows the technician to see how many cycles have been run on the Hydrim.

Touch cycle count and the number of cycles (completed and aborted) will be displayed. This cannot be reset.

Press the back arrow to return to the previous menu.

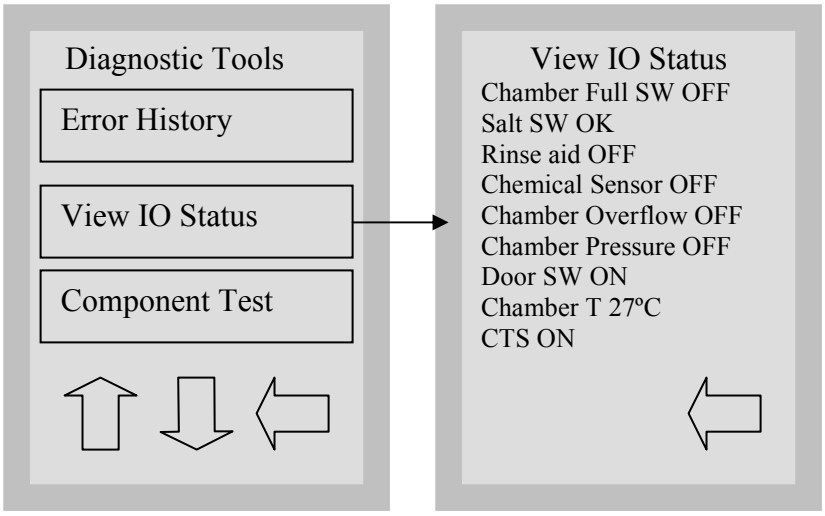


The Diagnostic Tools menu consists of four choices. Up arrow pressed, change to previous Diagnostic Tools screen. Down arrow pressed, change to next Diagnostic Tools screen. Press the back arrow to return to the previous menu.

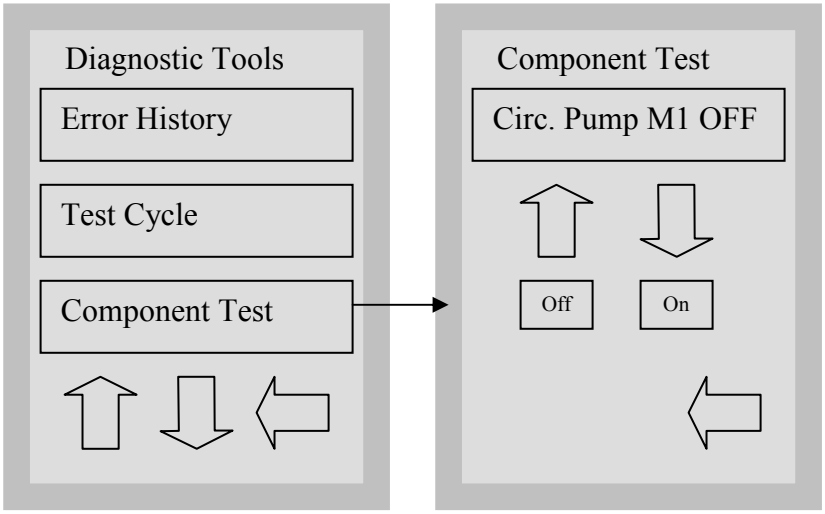


Error History screen, allows the user to see the last four errors.
Press the down arrow to move to the next page / error. Press the X in the lower left hand corner to clear the error history. There must be 4 errors stored to clear the error history and the last error will remain.

Press the back arrow to return to the previous menu.

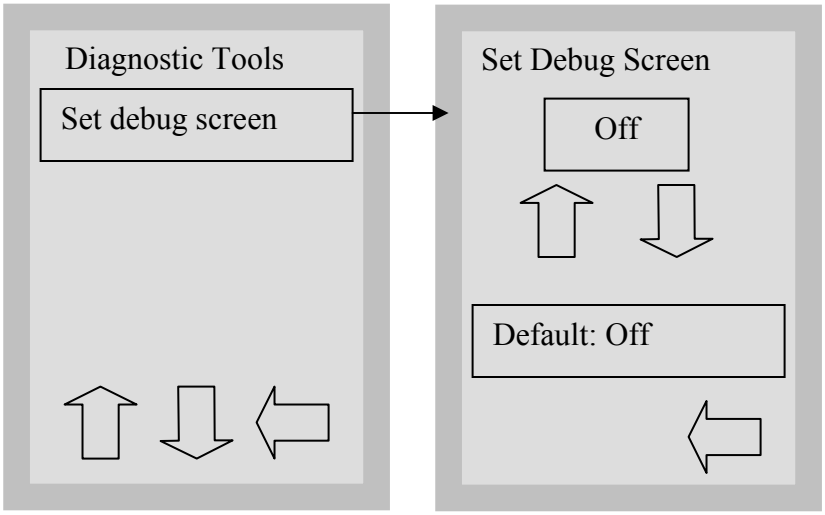


Shows the status of each component in the unit:
Chamber Full SW – ON/OFF
Salt (Regeneration) SW – OK
Rinse Aid SW – ON/OFF
Chemical Sensor - ON/OFF
Chamber Overflow SW – ON/OFF
Chamber Pressure SW – ON/OFF
Door SW – ON/OFF
Chamber Temperature - XXºC
CTS (clear to send) – ON/OFF
(To Printer or Datalogger)
Press the back arrow to return to the previous menu.



Allows individual testing of the following components:
Circ. Pump M1 - ON/OFF
All Devices – ON/OFF
Latch L1 – ON/OFF
Salt Valve Y2 – ON/OFF
Dosing Pump M4 – ON/OFF
Dryer Motor+Heater – ON/OFF
Hot W Valve Y7 – ON/OFF
Cold W Valve Y1 – ON/OFF
Rinse Aid Valve – ON/OFF
Waste Pump M2 – ON/OFF

Up arrow pressed, next device.
Down arrow pressed, previous device.
On button pressed, set device On.
Off button pressed, set device Off.
Press the back arrow to return to the previous menu.

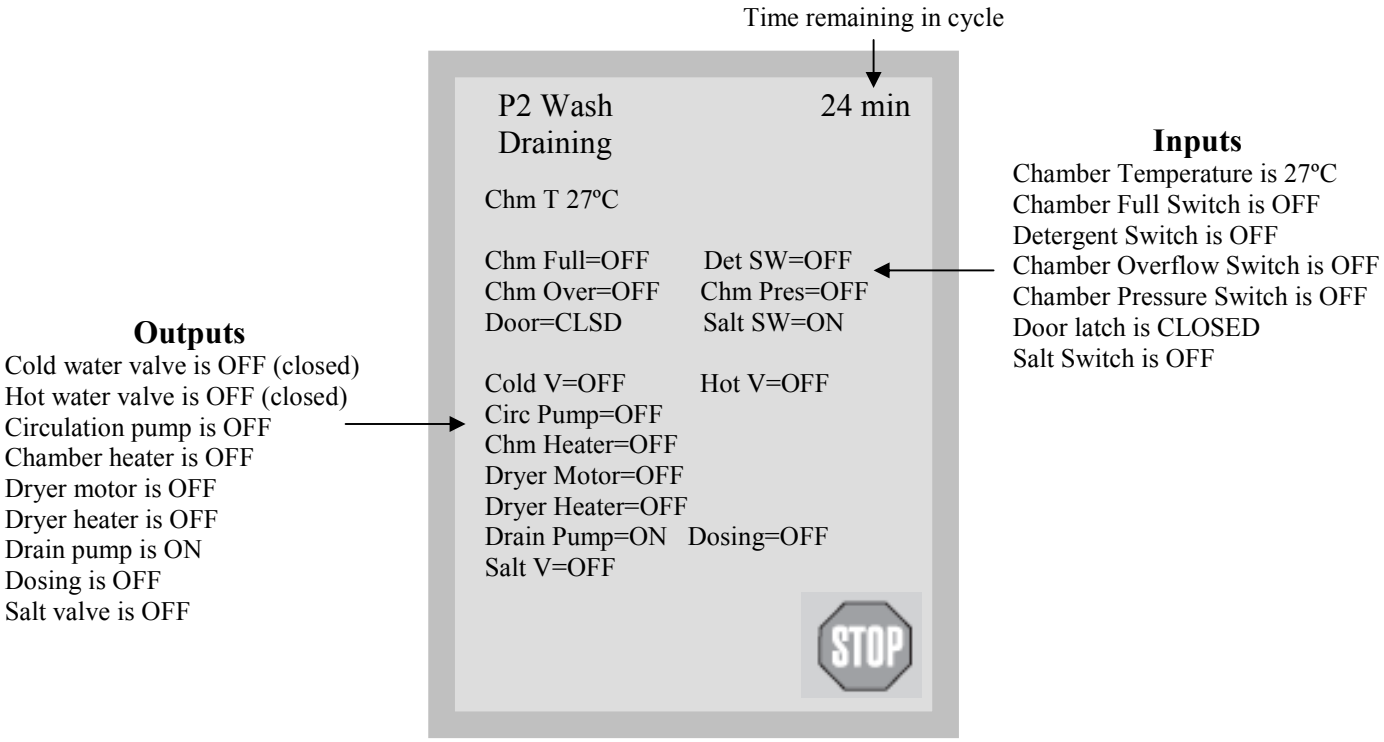


Up arrow button pressed, increase value.

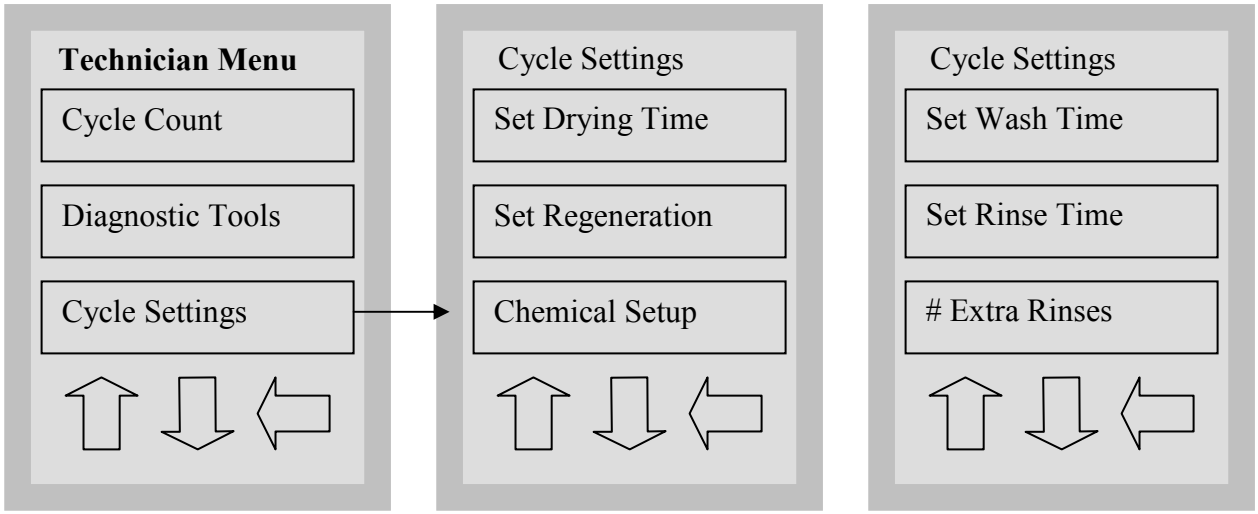
Down arrow button pressed, decrease value.

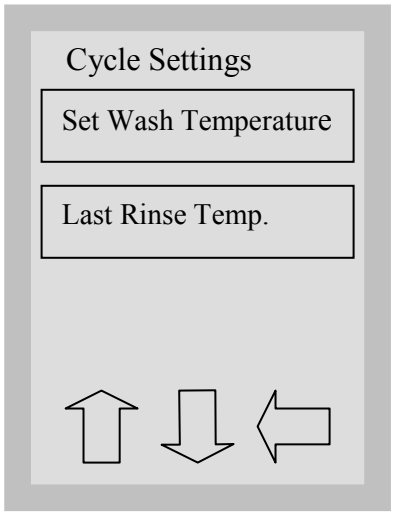
Default button pressed, set to default value.

Press the back arrow to return to the previous menu.



The Debug cycle should be used when troubleshooting to view the IO status of components.

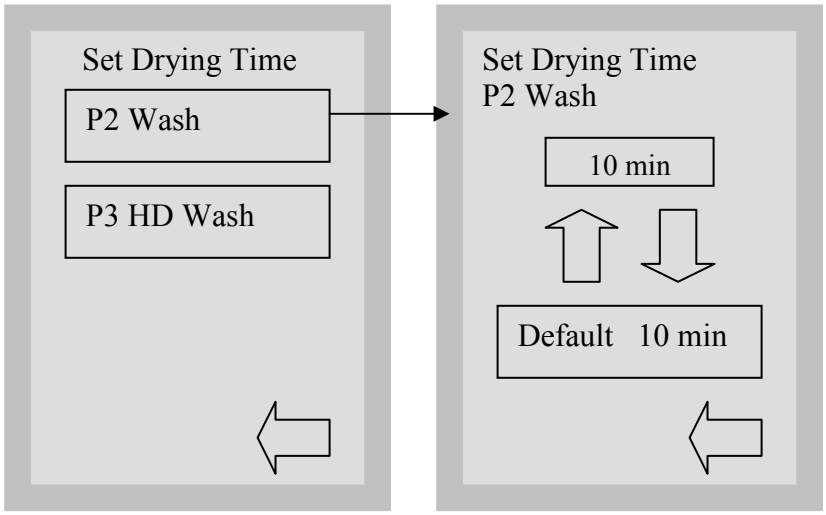




Cycle Settings menu consists of eight choices.

Use up and down arrows to change to different Cycle Settings screens.

Press the back arrow to return to the Technician menu.



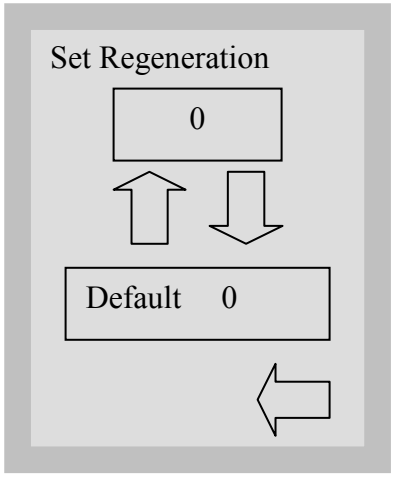
The drying time for P2 and P3 can be set independently.

Touch the cycle for which you want to set the drying time.

Use the up and down arrows to select the desired drying time.

Choose from 1 to 20 min. Press **default** if you wish to return to the factory default.

Press the back arrow to return to the Technician Menu.

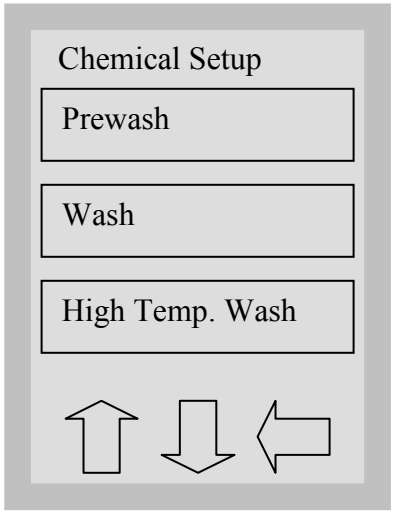


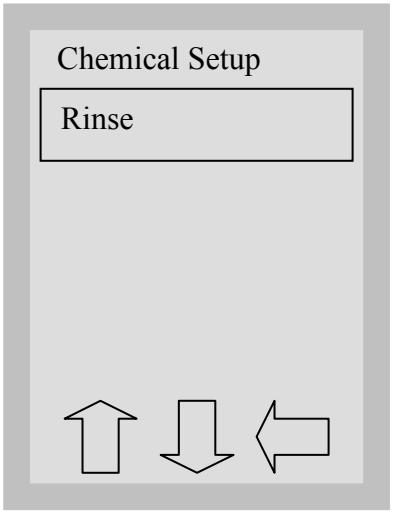
Use a Water Test Kit part #01-108305S to determine if salt is required.

Use the up and down arrows to select the desired salt regeneration setting.

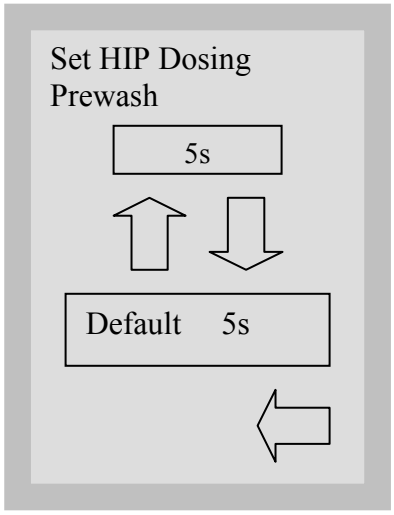
Press **default** to return to the factory default.

Press the back arrow to return to the Technician Menu.





Select cycle for dosing setting you wish to change.

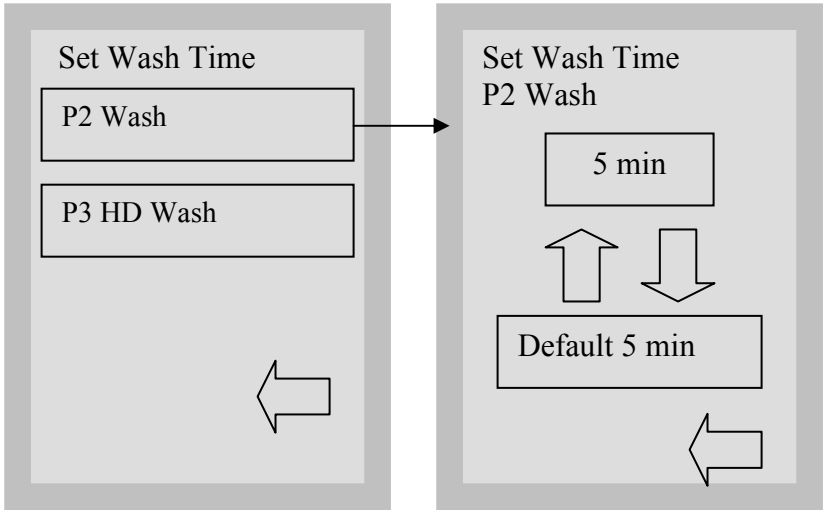


Use the up and down arrows to select the desired dosing setting for the cycle selected. (Do Not change default setting unless directed by SciCan)

Press **default** to return to factory default.

Press the back arrow to return to the Technician Menu.

Prewash dosing Min Value 0 – Max Valve 15s, Default Value 5s
Wash dosing Min Value 0 – Max Value 30s, Default Value 14s
HD Wash dosing Min Value 0 – Max Valve 30s Default 15s
Final rinse dosing Min Value 0 – Max Value 15s, Default Value 10s



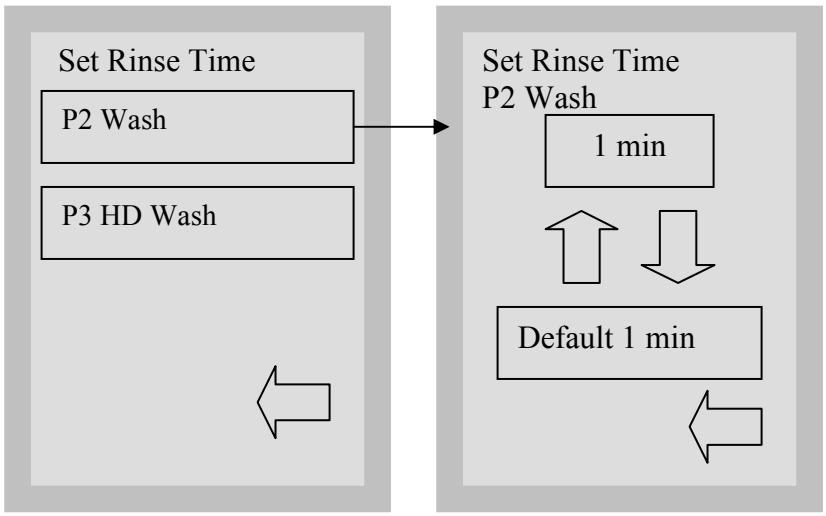
Select cycle for wash time you wish to change.

Use the up and down arrows to select the desired wash time for the cycle selected. (Do not change default setting unless directed by SciCan)

Press **default** to return to factory default.

Press the back arrow to return to the Technician Menu.

P2 & P3 wash times Min Value 5 min – Max Value 15 min
Default Values P2 – 5 min & P3 – 9 min



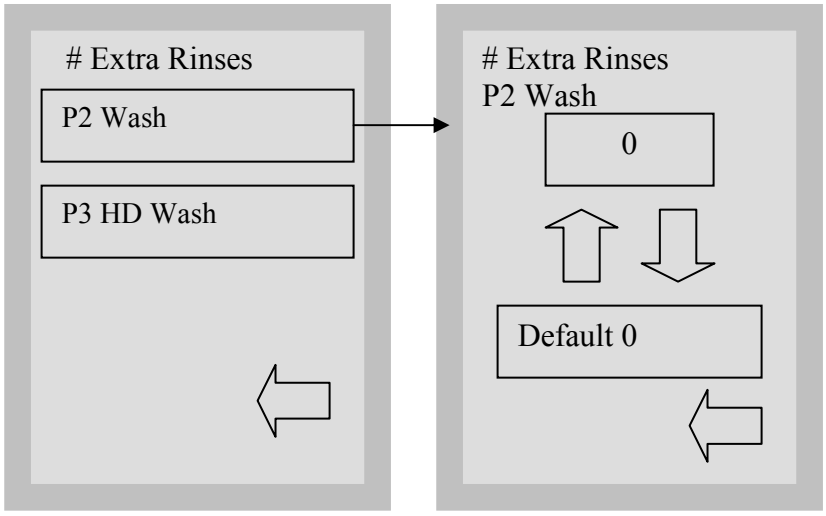
Select cycle for rinse time you wish to change.

Use the up and down arrows to select the desired rinse time for the cycle selected. (Do not change default setting unless directed by SciCan)

Press **default** to return to factory default.

Press the back arrow to return to the Technician Menu.

P2 & P3 rinse times Min Value 1 min – Max Value 10 min
Default Values P2 & P3 – 1 min



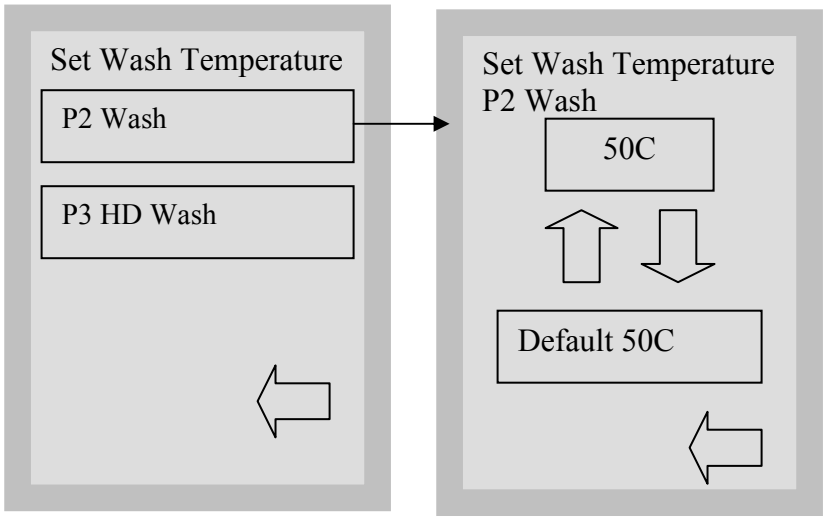
Select cycle for # extra rinses you wish to change.

Use the up and down arrows to select the desired # of extra rinses for the cycle selected. (Do not change default setting unless directed by SciCan)

Press **default** to return to factory default.

Press the back arrow to return to the Technician Menu.

P2 & P3 # extra rinses Min Value 0 – Max Value 4
Default Value P2 & P3 – 0



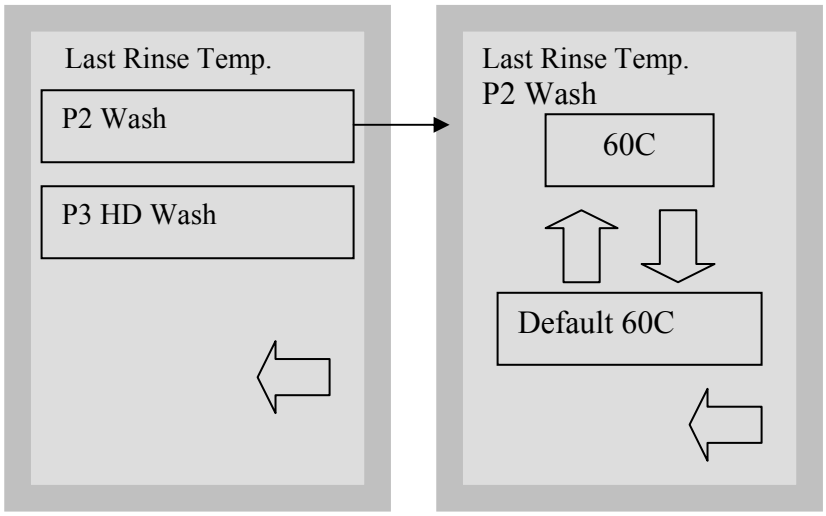
Select cycle for wash temperature you wish to change.

Use the up and down arrows to select the desired wash temperature for the cycle selected. (Do not change default setting unless directed by SciCan)

Press **default** to return to factory default.

Press the back arrow to return to the Technician Menu.

P2 & P3 wash temperature Min Value 45ºC – Max Value 80ºC



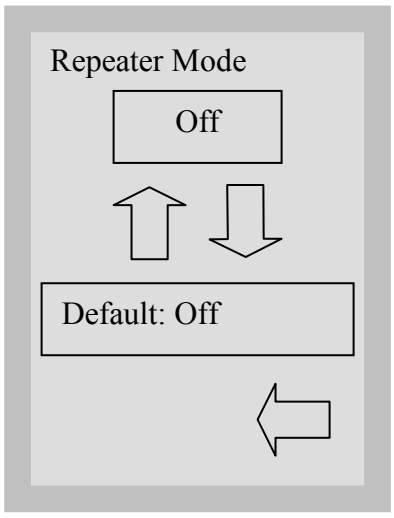
Select cycle for last rinse temperature you wish to change.

Use the up and down arrows to select the desired last rinse temperature for the cycle selected. (Do not change default setting unless directed by SciCan)

Press **default** to return to factory default.

Press the back arrow to return to the Technician Menu.

P2 & P3 last rinse temperature Min Value 30ºC – Max Value 93ºC



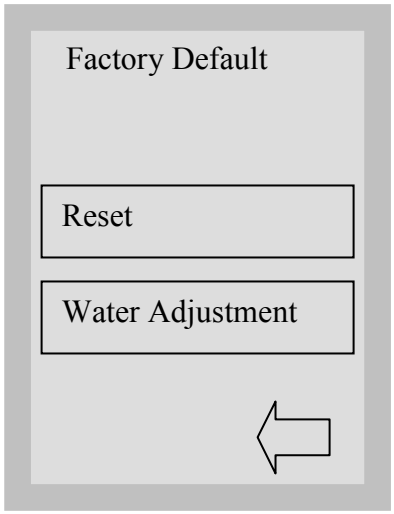
Up arrow button pressed, increase value.

Down arrow button pressed, decrease value.

Default button pressed, set to default value.

Press the back arrow to return to the previous menu.

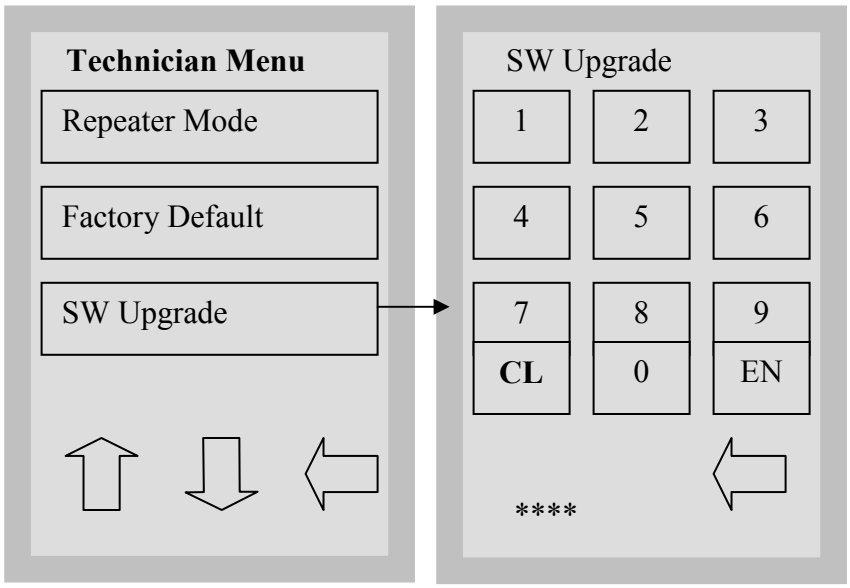
Repeater mode will reset to OFF when Power Switch is turned OFF or set to OFF from this screen. When wash cycle is aborted by pressing the stop button, repeater mode will stay ON.



Reset button pressed, reset to factory default values.

Water adjustment is for **factory only.**

Press the back arrow to return to the previous menu.

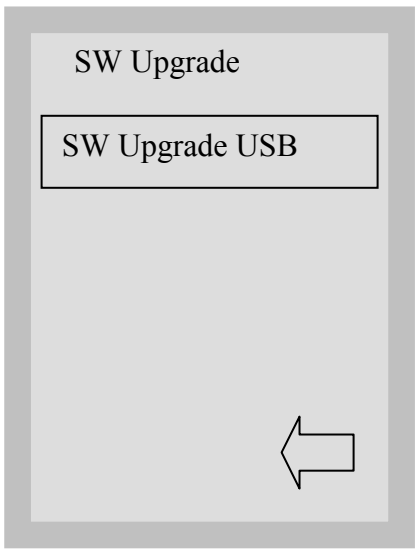


Software Upgrade select SW Upgrade
A Datalogger is required to upgrade software.

To enter the Software Upgrade screen select 5849 and press EN.

Touch CL to clear the last number entered.

Press the back arrow to return to the previous menu.



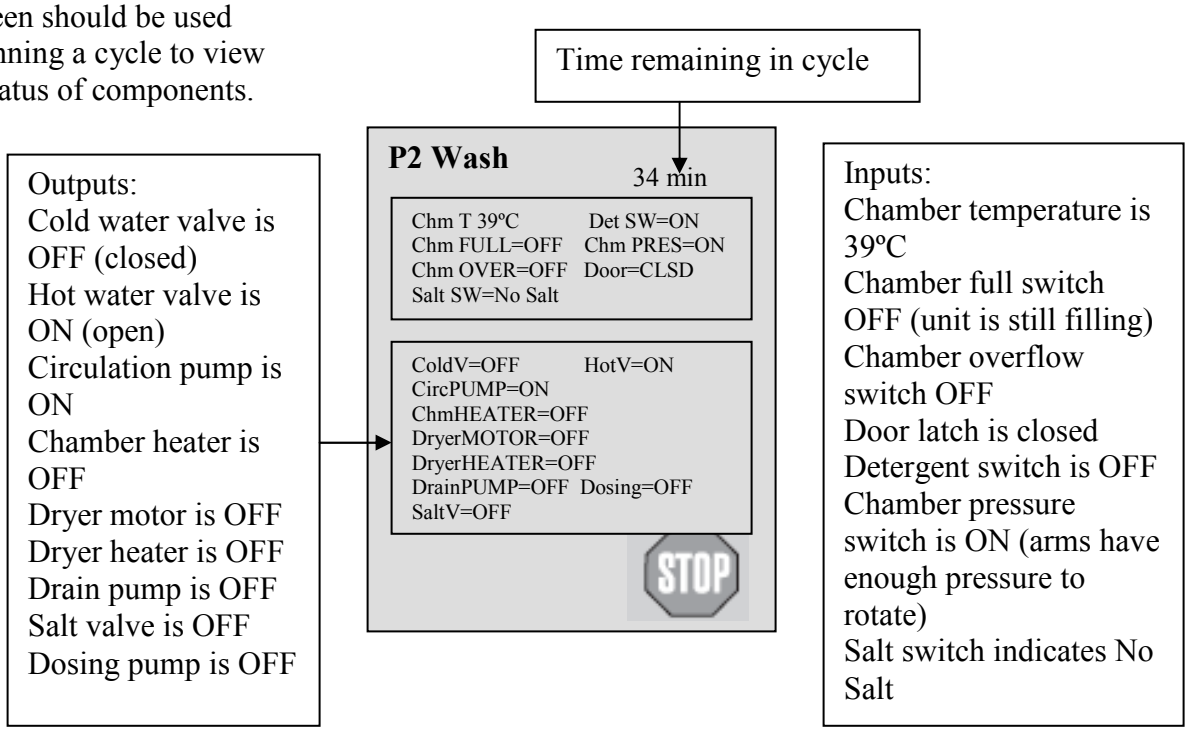
SW Upgrade USB button pressed, start SW upgrade procedure. This option allows technician to upgrade software by using a USB Data Logger and files stored on a USB Memory Stick.

Press the back arrow to return to the previous menu.

Troubleshooting Using Technical Service Menu

Within the technical service menu, there are several useful tools for troubleshooting.

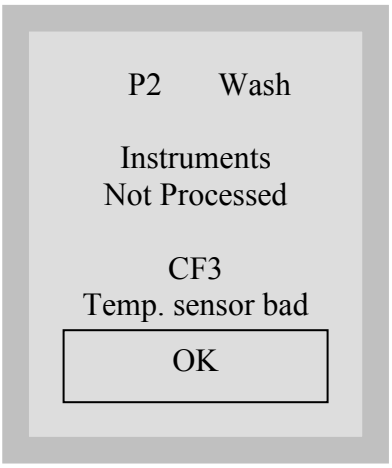
Debug screen:
This screen should be used when running a cycle to view the IO status of components.



View IO status:
This screen should be used when testing components and wires for functionality without running a cycle.

Cycle Faults

If the software detects an error, an error message will appear on the screen showing one of the following codes.



CF1 Heating Failure

1. Detection

   Water temperature does not increase by 1ºC over a 2 minute period after the first 5 minutes of heating or, if that happens but it doesn't reach target temperature in 40 minutes.

2. Cause

   Pressure switch not activating - low water level, defective pressure switch.
   Defective heating element.

CF2 Chamber Filling Failure

1. Detection

   Chamber full switch not activated in the first 6 minutes of filling – circulation pump not running yet (if hot water missing or at low pressure unit will switch to cold water after 4 minutes if chamber full switch is not activated).
   Pressure switch not activated in 4 minutes of filling after the circulation pump was turned ON (after full switch was activated).

2. Cause

   No water supplied at the unit (hot or cold).
   Defective water valve (hot and/or cold).
   Defective chamber full switch
   Defective pressure switch
   Defective circulation pump

CF3 Chamber Temperature Sensor Failure

1. Detection

   Temperature sensor readings are out of limits (either too low or too high).

2. Cause

   Broken temperature sensor wire, bad temperature sensor connection to PCB.

CF4 Water Evacuation Failure

1. Detection
   Chamber full switch did not open in 1 minute after drain pump turned ON.

2. Cause
   Defective chamber full switch
   Clogged drain
   Defective drain pump

CF7 Cycle Aborted or Interrupted

1. Detection
   Stop button pressed or power failure

2. Cause
   Stop button pressed or power failure

CF9 Software or PCB Failure

1. Detection
   The unit is running a cycle for more than 3 hours
2. Cause
   Defective PCB and/or software failure.

CF11 No Detergent Flow

1. Detection
   The flow switch did not detect detergent flowing. CF11 will not be displayed if the flow switch doesn't detect detergent during the rinse phase of the cycle. However, "no detergent" will be displayed when the next cycle is selected.
2. Cause
   No detergent
   Defective flow switch

CF14 Bad Flow Switch

1. Detection
   After the second dosing during the wash phase of the cycle, the flow switch did not turn OFF after a 15 second timeout.

2. Cause
   Flow switch stuck ON.

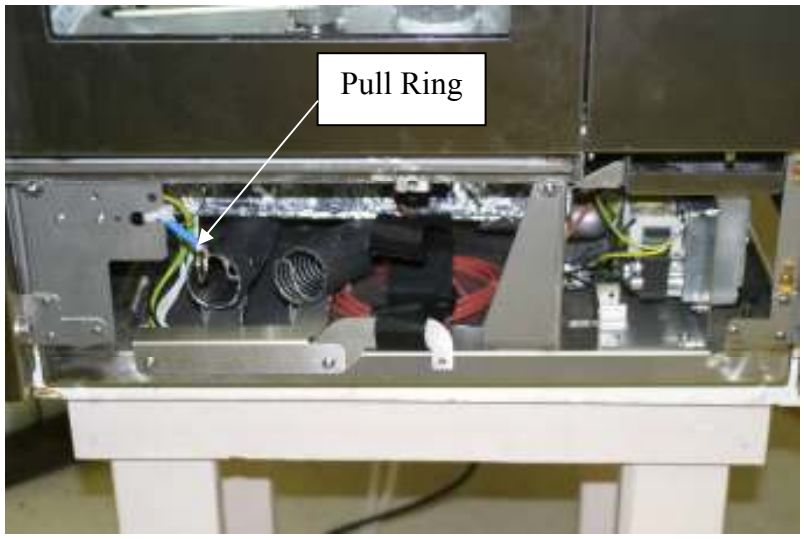
CF15 Chamber Overflow

1. Detection
   The overflow switch did not turn OFF after 30 seconds of the drain pump running.

2. Cause
   Defective overflow switch
   Clogged drain

Opening the Door in Case of Power Failure

If there is a power failure, remove the cover below the door. Locate the ring to the left and pull it to open the door. Exercise caution! There may be fluid remaining in the unit and the instruments may be hot. Instruments that have not completed the cycle should not be used and should be reprocessed.



Cover Removal

Top Cover

Open front door and remove two screws under front of top cover. Lift up top cover to remove.

Lower Front Cover

To remove the front cover below the door, remove screw in top center of cover.

Side and Rear Covers

To remove the side and rear covers, remove top cover first then lift up on side or rear covers and remove cover.

Note: When replacing/re-attaching cover, ensure that ground wires are re-attached

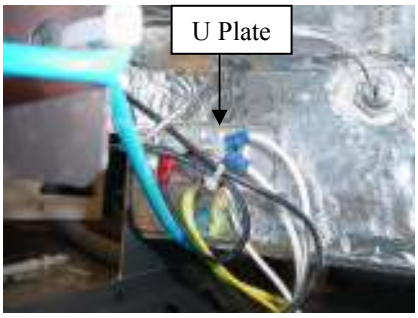
Flow Switch

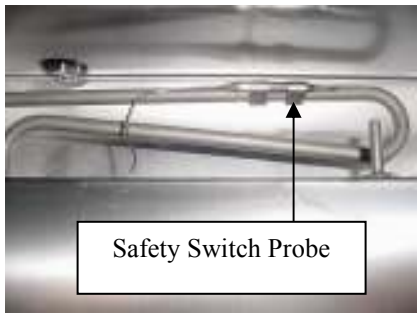
The Flow Switch is located behind the solution box. Disconnect the solution box from the black cap and hose assembly and remove box from solution door. Remove screw from back panel inside solution door. Lift up on mounting bracket and turn so Flow Switch is accessible. Cut tie wrap holding Flow Switch to mounting bracket and remove tubing's using Hemostats to pinch tubing's so they don't leak. Gently pull Flow Switch towards you until electrical plug is accessible then disconnect plug. Reinstall new Flow Switch in reverse order. **Flow Switch Part # 17137.02**

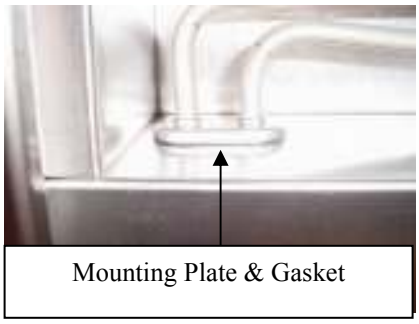
Dosing Pump

The Dosing Pump is located behind the cover below the front door. Remove screw from top center of cover and locate the Dosing Pump on the right side. Remove two mount screws to access the Dosing Pump. **Dosing Pump Part # 21972.01**

Water Heater

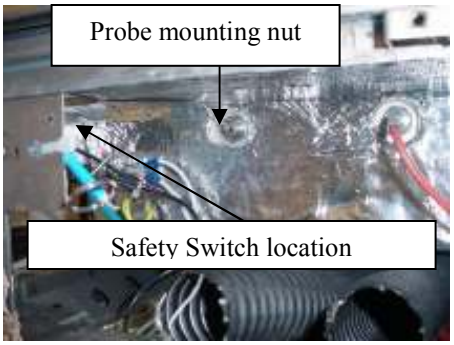






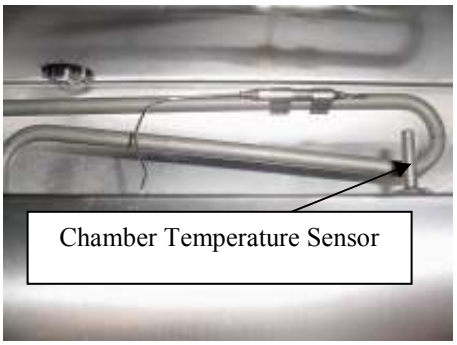
The Water Heater connections are located behind the cover below the front door. The heater is located in the chamber and locked in place with the double U plate from outside. After removing the mounting nuts and U plate the Water Heater is removed from inside the chamber underneath the filter screen. Remove safety switch probe before removing the heating element. **Water Heater Part # 23012.01**

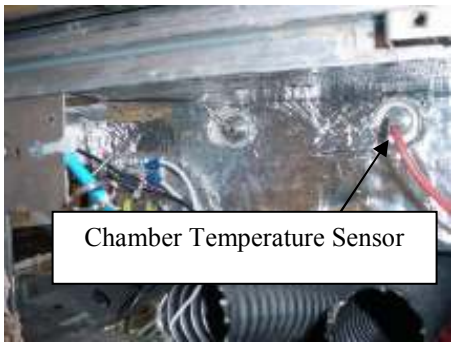
Safety Switch & Probe



Remove filter screen from inside chamber and unclip Safety Switch Probe from Heating Element.
Behind the cover below the front door remove the nut that holds the probe to the chamber. Safety Switch is located behind plate.
Safety Switch Part # 22815.03

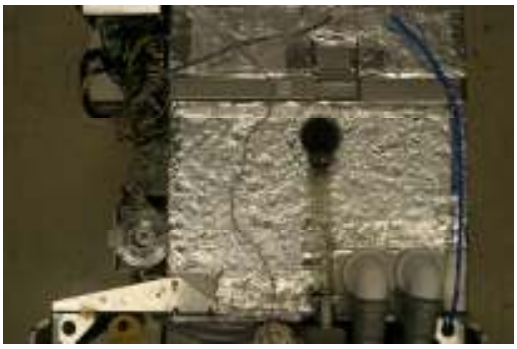
Chamber Temperature Sensor





Remove mounting nut from sensor located underneath the filter inside the chamber. Behind the cover below the front door remove the sensor from the chamber and unplug the red wiring. **Chamber Temp. Sensor Part # 22816.12**

Door Latch



Remove top cover. Disconnect Door Latch in front of unit and replace. **Door Latch Part # 23066.00**

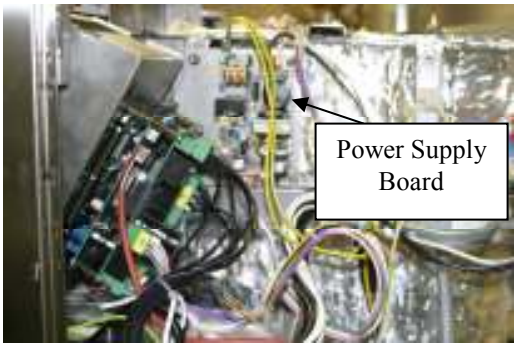
Touch Screen

Remove the screw above the touch screen and open door. Disconnect I/O Board and Logic board from Touchscreen, replace the touchscreen and re-connect the boards in reverse order. Close the door and re-insert the screw above the touchscreen.
Touch Screen Part # 01-109785S

Controller Assembly

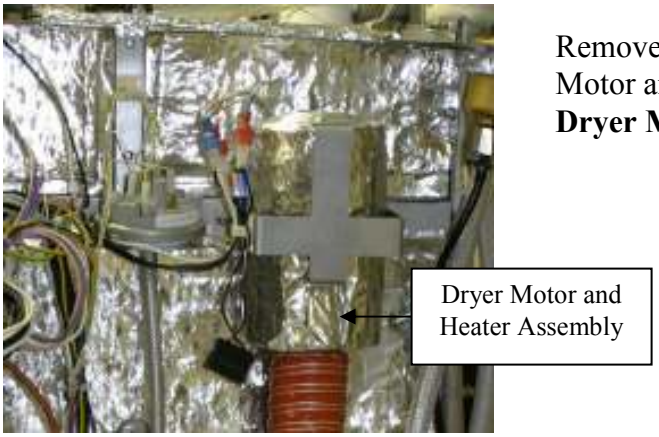
Remove the screw above the touch screen and pull out the door to access the IO Board and Logic Board. Replace as needed.
IO Board Part # 01-109783S
Logic Board Part # 01-110217S

Power Supply Board



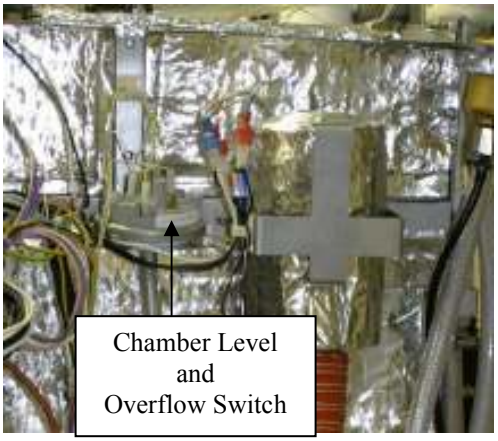
Remove top cover and right side panel to access Power Supply Board.
Power Supply Board Part # 01-109782S

Dryer Motor and Heater



Remove top cover and right side panel to access the Dryer Motor and Heater Assembly.
Dryer Motor & Heater Part # 01-110218S

Chamber Level and Overflow Switch

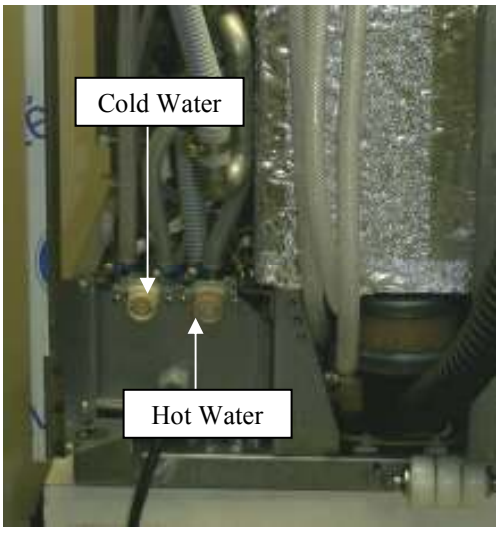


Remove top cover and right side panel to access the Chamber Level and Overflow Switch.
Chamber Level & Overflow Switch part # 22850.00

Chamber Pressure Switch

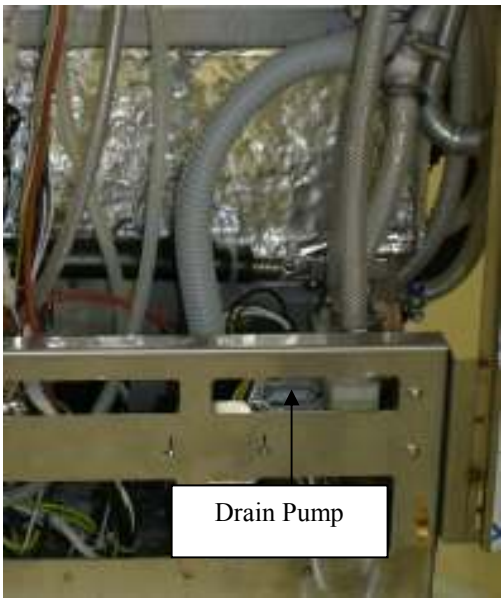
Remove the top and rear covers to access the Chamber Pressure Switch.
Chamber Pressure Switch Part # 22859.10

Cold & Hot Water Inlet Valves



Remove the top and rear covers to access the Cold & Hot Water Inlet Valves. The dual valve is for cold water and the single valve is for hot water.
Cold Water Inlet Valve Part # 22089.04
Hot Water Inlet Valve Part # 22089.05

Drain Pump



Remove top cover and right side panel to access the Drain Pump.
Drain Pump Part # 21942.00

Circulation Pump

Remove top cover, rear and left side panels to access the Circulation Pump.
Circulation Pump Part # 21953.01